Norovirus Management Toolkit

Outbreak Preparedness & Response

Bureau of Health Statistics, Planning, Epidemiology & Response

Version 1.1

9.05.12

Summary

"Healthcare-associated infections impose significant economic consequences on the nation's healthcare system. The annual direct hospital cost of treating healthcare-associated infections ranges from 28 to 34 billion dollars. The benefits of effective infection control interventions could save between 25 to 32 billion dollars annually."

—The Direct Medical Costs of HAI's in U.S. Hospitals and the Benefits of Prevention. This report was taken from the CDC website.

Healthcare-associated infections (HAI) are infections caused by a wide variety of common and unusual bacteria, fungi, and viruses during the course of receiving medical care. Medical advances have brought lifesaving care to patients in need, yet many of those advances come with a risk of HAI. These infections related to medical care (exposure and negligence in health care facilities) can be devastating and even deadly. As our ability to prevent HAIs grow, these infections are increasingly unacceptable and unnecessary.

Whenever patient care is provided, adherence to infection prevention guidelines is needed to ensure that all care is safe care. This includes hospitals, skilled nursing facilities (SNFs), and other healthcare settings throughout the state. The information found in this toolkit is intended to inform healthcare personnel and help move Nevada's healthcare systems towards eliminating of HAIs.

Purpose of the Norovirus Preparedness & Response Toolkit

Norovirus is the most commonly investigated HAI in SNFs in Nevada. Norovirus can have a significant impact on the patients in the SNF, and on the facilities themselves. Outbreaks can cost facilities thousands of dollars in time, money, effort. The purpose of this toolkit is to provide best practice guidelines for preventing, preparing for, controlling, and mitigating norovirus outbreaks in SNFs throughout the state of Nevada. This toolkit will provide SNFs with the necessary steps needed to effectively respond to a norovirus outbreak within their facility.

Responsibilities

Facility:

Skilled Nursing Facilities are responsible for providing the highest practicable level of care for all residents in their facility while ensuring resident safety and resident's rights are protected. This includes providing care in a manner that prevents cross contamination and protects all residents from potential exposure to norovirus.

Bureau of Health Care Quality & Compliance:

The responsibility of the Bureau of Health Care Quality & Compliance is to protect the safety and welfare of the public through the promotion and advocacy of quality health care through licensing, regulation enforcement, and education. The Bureau of Health Care Quality & Compliance conducts inspections to ensure compliance with state and federal regulations addressing patient rights, quality of care and environmental safety. Additionally, the Bureau of Health Care Quality and Compliance partners with advisory committees for training facility staff and inspectors on current standards of practice and regulations addressing the prevention of facility acquired infections.

Office of Public Health Informatics & Epidemiology:

The responsibility of the Office of Public Health Informatics & Epidemiology is to conduct disease surveillance, investigate disease outbreaks, and initiate disease control activities. The Office of Public Health Informatics & Epidemiology works with state-licensed SNFs to ensure each facility is prepared to manage potential norovirus outbreaks within their facility. This is accomplished by establishing communications, conducting outbreak management training, and providing the necessary toolkits and outbreak management techniques to Nevada's SNFs.

Patient Rights

While in the care of SNF's, residents must be allowed to exercise their rights as patients. Patients must be allowed to participate in activities that physically and socially promote and enhance their well being. During certain circumstances, some activities may be restricted when the health or safety of other resident, staff or community are endangered.

Residents residing in a SNF may be exposed to infectious disease such as norovirus. Exposure to such diseases will require prompt infection prevention and control interventions such as transmission based precautions, moving residents to another room, changing roommates, or using disposable dishes. Quick response techniques will help avoid the spread of infection. During some insistences, infection control interventions may interfere with patients' rights. Therefore, it is essential that a facility

experiencing an outbreak report the incident immediately to their local health authority for consultation.

Balancing the physical and psychological needs of a resident with proper infection control measures will mitigate the stress associated with any restriction requirements that may be implemented during an outbreak. The NSHD strives to ensure the comfort and well being of all patients within Nevada's healthcare settings, as well as working closely with the state's healthcare facilities in controlling an outbreak as quickly as possible.

The rights of residents of Nevada's healthcare facilities are guaranteed under Federal and State regulations. Below are the applicable federal and state regulations regarding patient rights:

Code of Federal Regulation

42 CFR 483.10. Exercise of the rights

The resident has the right to a dignified existence, self-determination, and communication with and access to persons and services inside and outside the facility. A facility must protect and promote the rights of each resident, including access and visitation rights (483.10(j)).

42 CFR 483.15. Quality of life

A facility must care for its residents in a manner and in an environment that promotes maintenance or enhancement of each resident's quality of life.

(a) *Dignity*. The facility must promote care for residents in a manner and in an environment that maintains or enhances each resident's dignity and respect in full recognition of his or her individuality.

(b) *Self-determination and participation*. The resident has the right to:

- Interact with members of the community both inside and outside the facility

(c) *Participation in resident and family groups*. A resident has the right to:

- Organize and participate in resident groups in the facility.
- A resident's family has the right to meet in the facility with the families of other residents in the facility.

(d) *Participation in other activities*. A resident has the right to participate in social, religious, and community activities that do not interfere with the rights of other residents in the facility.

(e) *Accommodation of needs*. A resident has the right to:

- Reside and receive services in the facility with reasonable accommodation of individual needs and preferences, except when the health or safety of the individual or other residents would be endangered; and
- Receive notice before the resident's room or roommate in the facility is changed.

(f) *Activities.* The facility must provide for an ongoing program of activities designed to meet, in accordance with the comprehensive assessment, the interests and the physical, mental, and psychosocial well-being of each resident.

Nevada Administrative Code:

449.74445 NAC. Rights of Patients. (NRS 449.0302)

1. A facility for skilled nursing shall protect and promote the rights of each patient in the facility.
2. In addition to the rights set forth in NRS 449.710 and 449.720, a patient in a skilled nursing facility has the right to:

(a) Receive care in a manner and environment that maintains and enhances each patient's dignity with respect to each patient's individuality.

Background

Illness & Symptoms

Infection with norovirus usually causes illness 12-24 hours after exposure, but can appear as early as 6-10 hours after exposure. Although infection with norovirus is not usually serious, people can become dehydrated quickly. Symptoms often include nausea, vomiting, diarrhea, and abdominal cramping. Sometimes people have a low-grade fever, chills, headache, muscle aches, and a general sense of tiredness. The illness is usually brief, with symptoms lasting only 12 to 72 hours. Most people have no long-term health effects from the illness. However, the very young, the elderly, and persons with weakened immune systems may be unable to drink enough liquids to replace what they lose from vomiting and diarrhea, causing dehydration which may require medical intervention. Outbreaks may also be very disruptive to facility operations, and affect resident and staff safety and comfort.

There are no specific medications for treating a norovirus infection; norovirus infections do not respond to antibiotics. By drinking fluids, such as juice or water, people can reduce the likelihood of becoming dehydrated.

Transmission

Noroviruses can spread easily and quickly from person to person. The virus is found in the stool and vomit of infected people. People can become infected when the virus enters their mouth by eating or drinking contaminated food or liquids and by touching their mouth, eyes or nostrils after touching surfaces or objects contaminated with norovirus. Therefore, hand hygiene is essential in preventing infection or the spread of norovirus

People infected with norovirus are contagious 24-48 hours prior to the appearance of symptoms. While symptoms usually last from a few hours to 3 days, infected people can shed the virus in their stool for as long as 72 hours after symptoms resolve. However, infected people do not become long-term carriers of norovirus (*Guideline for the Prevention & Control of Norovirus Gastroenteritis Outbreaks in Healthcare Settings, 2011).*

Anyone can become infected with norovirus. There are many different strains of norovirus, and infections and illness can occur more than once during a person's lifetime. There is no vaccine for norovirus. Therefore, preventing infection and transmission is critical to reducing the impact of the virus.

Outbreak Prevention

"An ounce of prevention is worth a pound of cure."

—Benjamin Franklin

In today's emerging healthcare industry, outbreak prevention plays a major role in reducing the number of HAIs within SNFs. The consequences of an outbreak can range from ward closures to admission restrictions to high staff sickness rates. This results in a serious shortfall in primary care as well as enormous economic damage. There are a variety of measures SNFs can take to prevent outbreaks of norovirus in their facilities. They are as follows:

Hygiene

Provide information to staff and residents (e.g., in-service, notices, posters, etc.) to re-enforce facility policy regarding hygiene. In particular, facilities should focus on the need for frequent hand-washing with warm water and soap. Although hand-washing is preferred for diseases such as norovirus or influenza, alcohol-based hand sanitizers may be considered when soap and water are not readily available and hands are not visibly dirty. Ensure adequate access to hand-washing stations

and supplies (e.g. soap, paper towels), and provide and encourage use of hand sanitizer stations in both work and public areas.

Staff Illness Policy

Ensure that a clear, fair, safe policy on workers with illness is in place, and identify and remove barriers to absence due to illness. A liberal, non-punitive sick leave policy that addresses the needs of sick personnel and facility staffing should be in place. It is recommended that ill staff remain at home for at least 48 to 72 hours after symptoms subside. A contingency staffing plan should be developed that identifies minimum staffing needs and prioritizes critical and non-essential services based on residents' health status, functional limitations, disabilities, and essential facility operations. The plan should acknowledge the problem of reduced staff availability combined with increased patient/resident care needs that can occur during a disease outbreak.

Review and Identify Facility Cleaning Guidelines

Observe routine housekeeping procedures to identify cross contamination issues (e.g., using the same cloth to clean bathroom surfaces and wiping down ice buckets, or putting soiled linen into the washing machine with ungloved hands and then removing clean linen from the dryer). Correct deficiencies when found and share the information with other managers to standardize optimal cleaning methods.

Identify high touch surfaces (e.g., those with frequent hand contact, high risk of exposure to fecal matter or vomitus, food preparation surfaces, common medical equipment etc.) and a reasonable cleaning frequency for the facility. Ensure that equipment is available and working properly. Determine if water temperatures for dishwashers and washing machines are adequate for disinfection. Note that care should be used in adjusting facility hot water temperatures – any increase to temperatures that may injure staff, patients or residents should be considered carefully.

Engineering controls and practices to consider include installing auto-dispensing paper towel dispensers in public restrooms, employee restrooms, and kitchens.

A potential source of infection that is often overlooked is "community" ice machines in dining areas, nursing areas and at nursing stations. Scooping ice with items such as glasses, buckets, or cups may be a source of contamination during a disease outbreak – therefore, these practices should always be prohibited. Employees must properly wash their hands and wear gloves prior to filling ice containers, and a separate hand sink should be provided for employees to wash their hands. This sink should be in the same area where containers are filled and the ice is added to the containers. Do not allow any sick person to fill or handle water containers. Ice must be dispensed with an ice scoop (without coming in direct human contact) preferably a disposable scoop. To prevent direct hand contact with the ice, it is recommended that employees wear

disposal gloves. Facilities may wish to consider using closed, gravity-fed machines to eliminate direct access to the ice by staff.

Potentially contaminated materials, such as ice buckets or water jugs, should be cleaned and sanitized at least once every 24 hours. This includes washing with an appropriate detergent in the first compartment of a three-compartment sink, rinsing clean with water in the second compartment, and sanitizing with an approved agent in the third compartment by immersing for one minute. The compartments of the sink should be of sufficient size to allow immersion of the container. For containers too large to be immersed in the three-compartment sink, a clean and sanitize in place procedure can be used. This involves using a clean bucket and wash cloth for the detergent cleaning step, followed by rinsing the container at least three times with water, and finally, spraying the inside with a sanitizer solution. Provide an area to allow proper air drying of items. Empty containers for water or ice should not be stored on the floor at any time. If a facility is not capable of following these guidelines for cleaning water containers, it is recommended that bottled water be provided during an outbreak.

Refillable soap, detergent or hand sanitizer dispensers should be filled in an area free of environmental contaminants such as dust and insects. The dispenser should not be placed on the floor while filling. The dispenser should be filled in a room with smooth, dry, easily cleanable floors, walls, and ceilings, and should be kept away from chemical storage or other contaminants.

While this guidance provides some details for cleaning and disinfection related to a disease outbreak, other levels of disinfection or sterilization may be needed within any given facility. Additional guidelines for disinfection and sterilization in health care facilities can be found on pages 17 through 20. For further information please contact the Nevada State Health Division Outbreak Manager at 775-684-5918. If you are calling after hours or during the weekend, please contact the Office of Public Health Informatics and Epidemiology Duty Officer at 775-684-5911.

Develop and Institute Surveillance

Developing and instituting basic surveillance for gastrointestinal infection in patients, residents and staff is critical for rapidly identifying illness and outbreaks within your facility. A system must be developed to routinely monitor and record illness among patients, residents and staff. This provides a baseline for illness and helps to identify potential cases or increases in disease activity that may indicate an outbreak. Data should be updated at the end of each shift, and reviewed at the beginning of each shift. A specific case definition for norovirus might be:

- Vomiting and/or diarrhea (two or more loose stools in a 24-hour period) in a resident or staff member and whose symptoms have no other apparent cause.

An outbreak of gastroenteritis such as norovirus in a facility is defined as the presence of more diarrhea or vomiting that would usually be expected in the facility, or in a particular unit, for that time of year. A basic threshold for norovirus might be three or more cases of illness among residents and/or staff within a 72-hour period.

Laboratory testing and confirmation can provide important information about the causative agent. However, the cause of an outbreak is likely to be norovirus when:

- Stools are negative for bacterial pathogens
- The average incubation period is 12-48 hours
- The average duration of illness is 1-3 days
- Vomiting occurs in at least 50% of cases

NOTE: *Under NRS 441A.150, facilities must report an outbreak or suspected outbreak to their health authority on the first working day following the identification of an outbreak or suspected outbreak*

Additional Resources

When preparing for a potential outbreak, plan for promptly acquiring additional resources such as signs, educational materials, hand sanitizer, cleaning supplies and personal protective equipment. Recognize the increased need for increased waste management support as well as the increased consumption of some materials such as paper towels and toilet paper in restrooms. Estimate the quantities of essential materials and equipment (masks, gloves, hand hygiene products, IV fluids, etc.) that would be needed during an outbreak. Develop plans to stockpile adequate supplies and to address supply shortages, including strategies for using normal and alternative channels for procuring critical resources. The Nevada State Health Division can also assist in procurement of critical resources. For assistance contact the Outbreak Manager or the Duty Officer.

Facility Planning Committee

Outbreak management planning requires the coordination, collaboration and integration of multiple agencies. It will take the collective effort of many individuals to support the mitigation of an outbreak within your facility. Identifying specific individuals to form a facility planning committee to provide guidance and to respond to potential cases or outbreaks is essential. This committee should periodically review and update your facilities plans, policies, and procedures for responding to disease outbreaks. It is also recommended that the facility planning committee meet and discuss plans, policies, and procedures following an outbreak. This will help identify any potential gaps in outbreak response planning, as well as identify best practices that can be used and implemented during future outbreaks. Individuals to include on the facility planning committee may include or represent:

- Facility administration
- Medical director
- Nursing administrator
- Infection control
- Occupational health
- Staff training and orientation
- Engineering/maintenance services
- Environmental (housekeeping) services
- Dietary (food) services
- Pharmacy services

The planning committee should designate specific individuals to manage certain tasks during an outbreak. This may include communications, inter-facility coordination, training and education of staff, patient and staff needs, and outbreak mitigation coordination.

Contact Information

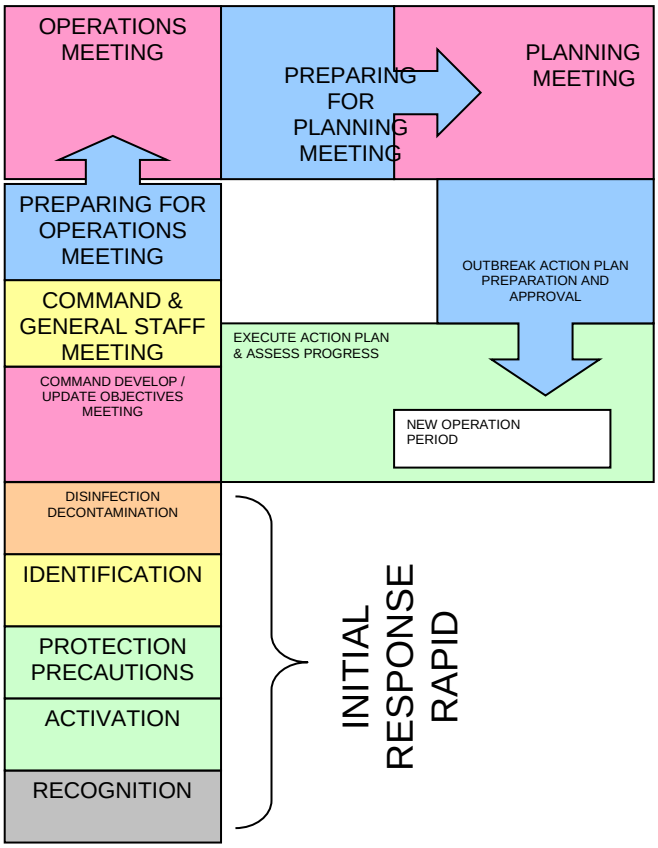
Contact information for the Nevada State Health Division and your Local Health Authority should be readily available. Information on your Local Health Authority is available at http://www.health.nv.gov/BOH_CountyHealthDistricts.htm. ***In accordance with NRS 441A.150, facilities must report an outbreak or suspected outbreak to their health authority on the first working day following the identification of an outbreak or suspected outbreak. An outbreak is defined as an occurrence of cases in a community, geographic region or particular population at a rate in excess of that which is normally expected in that community, geographic region or particular population.***

When reporting an outbreak, your facility must complete a daily report/line list. See the template form located at the end of this document. Please fax the list to the Nevada State Health Division Outbreak Manager at 775-684-5999. During an outbreak, the line list must be completed daily and received by 1:00 pm, including weekends. If you need assistance in completing the line list, please contact the Nevada State Health Division, Outbreak Manager at 775-684-5918 or the Office of Public Health Informatics & Epidemiology Duty Officer at 775-684-5911.

Outbreak Management

If a suspected case or outbreak of norovirus occurs in your facility, the following actions will help to reduce the impact.

The Planning "P"



The Planning "P" is an Incident Command System (ICS) tool that can be used to develop an Outbreak Action Plan, which can mitigate the effects of a norovirus incident within your facility.

Initial Response

The leg of the "P" describes the initial response to a norovirus outbreak. Once the outbreak has been recognized, the first step is to notify the local health authority, personnel within your facility (doctors, nurses, cleaning staff, kitchen staff, etc.),

patients and visitors. You should then initiate response & assessment of the outbreak, and hold a briefing of management personnel.

Planning begins with a thorough assessment that provides the information needed to make initial management decisions. Infection control personnel should record and present information about the outbreak situation such as the number of cases, lab results, location of sick patients, etc.; and the available resources such as cleaning supplies, available personal protection equipment (PPE), hand hygiene products, etc. available for the outbreak. This information can serve as a permanent record of initial response activities, which will help later in the response.

The Start of Each Planning Cycle

In the first planning cycle, a circular sequence, the steps are: objectives meeting; staff meeting; outbreak tactics meeting; planning meeting; Outbreak Action Plan; shift briefing and progress briefing. The tasks for each of these steps are as follows:

- **Objectives meeting:** Facility management establishes and records objectives that cover the entire course of the incidents (i.e. reduce the number of new norovirus cases within the facility by 50% within 2 days.) The cyclical planning process is designed to take the overall outbreak objectives and break them down into tactical assignments for each operational period. It is important that this initial overall approach to establishing outbreak objectives span the course of the incident, rather than having outbreak objectives only address a single operational period.

- **Staff meeting:** The staff meeting takes place to gather input or to provide immediate direction that cannot wait until the planning process is completed. This meeting occurs as needed and should be as brief as possible.

- **Preparing for and Conducting Outbreak Tactics Meeting:** The purpose of the tactic meeting is to review the outbreak management strategies developed by the facility infection control manager or management personnel. This includes the following:

    - Determine how the selected strategy will be accomplished in order to mitigate and eliminate the outbreak within your facility

    - Allocate resources to implement the tactics or strategies

    - Identify methods for monitoring tactics and resources to determine if adjustments are required

- **Planning Meeting:** The planning meeting provides the opportunity for facility staff to review, communicate and validate the strategies and tactics developed by the infection control manager.

- **Outbreak Action Plan Preparation and Approval:** During a norovirus incident, the Outbreak Action Plan should be developed by the facility infection control manager. ***Always remember that the local health authority or the Nevada State Health Division can and will assist in the development of this plan if needed.*** The infection control manager should provide copies of the Outbreak Action Plan to all pertinent staff as well as communicate verbally with them regarding the contents of the Outbreak Action Plan. Again, this communication ensures that all staff members are aware of what is required in order to mitigate and eliminate the outbreak.

- **Shift Briefing:** This briefing is conducted at the beginning of each shift. The meeting provides updates to incoming staff regarding the norovirus outbreak. Updates should include mitigation strategies being used, new cases of illness, and the need for additional resources.

- **Execute Outbreak Action Plan and Assess Progress:** The infection control manager is responsible for ensuring that facility staff are implementing the strategies outlined in the Outbreak Action Plan. The Outbreak Action Plan must be evaluated at various stages to ensure that the objectives are being met and effectiveness is assured. For example, if high touch surfaces (i.e. door handles, elevator buttons, keyboards) areas are being cleaned three time a day and the outbreak is still growing, then possibly those surfaces should be cleaned five times a day and identifying additional high touch surfaces may be necessary.

Contact Your Local Health Authority

In accordance with NRS 441A.150, facilities must report an outbreak or suspected outbreak to their health authority on the first working day following the identification of an outbreak or suspected outbreak. The local health authority can provide your facility with specific outbreak management guidelines to assist in identifying the cause of illness and the necessary measures to limit the spread of disease and stop the outbreak as soon as possible. Contact information for your local health authority is available at http://www.health.nv.gov/BOH_CountyHealthDistricts.htm.

Provide Information

Your facility should provide information to patients, residents, family members, ombudsmen and guests on the signs and symptoms, the mode of transmission, methods for preventing norovirus (including proper hand-washing), and how to report the illness. All visitors and relatives should be made aware of the outbreak and asked to cooperate with the facility infection control procedures. The skilled nursing facility shall implement a system for alerting staff and medical personnel of residents who are diagnosed or suspected of having norovirus, or if certain wards or units are in use for infected residents. Signs may be posted at the entrance of the facility alerting the public of the outbreak and for all individuals entering the facility to check in at the nursing station prior to visiting residents. Request that family and guests who are ill defer visiting until at least 72 hours after diarrhea and vomiting ceases.

Discontinue New Admissions/Visitors

It may be prudent to discontinue all new admissions and/or visitation to the facility until the outbreak is over. If visitation is allowed, visitors should go directly to the person they are visiting and minimize direct contact with other residents. Visitors should wash their hands upon entering and leaving the room. If your facility decides to accept new admissions, remember to notify EMS, patients, families and/or the facility the patient is arriving from. If a patient is being discharged, it is imperative EMS, the receiving facility or others who could potentially be exposed be notified of the outbreak.

Isolation of ill Patients

The skilled nursing facility will need to evaluate when isolation may be needed to help assure norovirus does not spread to other residents or staff. At a minimum, isolate ill residents from others (until at least 48-72 hours after their last symptoms). Group the ill people together if possible. Ill residents should not use shared lounges and meal areas. Generally, well residents may be allowed to continue normal daily activities, but activities where ill and well residents would be together should be discontinued. Group activities should be kept to a minimum or postponed until the outbreak is over. Residents should not be moved from an affected to an unaffected unit/ward/floor.

> **NOTE:** *It is imperative to ensure Patient Rights when isolating ill individuals within your facility during a norovirus outbreak.*

If ill residents must share a room with others, then **STRICT** hand hygiene procedures should be in place for staff, residents, and visitors and separate toilet facilities should be allocated for the affected residents

Asymptomatic individuals who might not reliably tend to their hygiene (e.g. those with cognitive impairment) may also need to remain in their rooms to control the spread of norovirus. In some situations, confinement of all individuals may be necessary if other control measures are not effective.

Note that individuals should be able to engage in necessary activities such as receiving medical care. Levels of allowable activities require evaluation on a case-by-case basis to minimize the risk of spreading norovirus.

To encourage isolation compliance, consider providing fluids such as hot tea, water, electrolyte solutions and broth, and foods such as crackers and dry toast to ill individuals in their rooms. Provide a mechanism for patients/residents to get items such as newspapers, magazines, light snacks, and over-the-counter medications without leaving their rooms.

If there are transfers out of the facility during the outbreak, notify the receiving facility of the situation so that appropriate precautions may be taken.

Active Surveillance

Consider the need to collect appropriate clinical specimens from some symptomatic staff and patients/residents for laboratory analysis. Consult with your local health authority or the Nevada State Health Division as soon as possible to determine the appropriate number of specimens to collect, the specimen collection methods, testing options, and arrange for transport (if testing is indicated).

Basic instructions for collecting specimens include:

1. Collect an unpreserved stool specimen in a clean, dry container (filling at least halfway) during the first 48 hours of illness. Please note that testing of vomitus for norovirus generally cannot be done. Viral excretion is greatest during the phase of illness where stool are liquid or semi-solid, but virus may be detected in formed stool. Staff must wear appropriate personal protective equipment when collecting specimens. If a spatula is used to collect stool (e.g., from a bedpan, diaper or incontinence pad) plastic should be used rather than wood.

2. Label each specimen container with the patient's first name, last name, date of collection, and the name of the facility. Testing may not be performed if the specimen container is improperly labeled or if the submission form is incomplete.

3. Indicate the facility name on the container. Numerous norovirus outbreaks may be under investigation within a single geographic area and the facility name is used to track the specimen and to direct appropriate reporting. The

local health authority may give you an outbreak identifier to include on the form as well.

4. Individual containers should be verified as leak proof, and then enclosed in a plastic bag. Testing will not be done on specimens that leak while in transit to the state laboratory.

5. Specimens for norovirus testing should be refrigerated (not frozen) after collection.

6. The entire collection of specimens should be bagged in plastic and placed in a padded, insulated box with refrigerant packs for shipment.

Symptomatic and Ill Staff Members

Staff who develop symptoms at work should go home immediately. Ill staff should report their illness to their supervisors, and should remain out of work until at least 48 to 72 hours after diarrhea and/or vomiting ceases. Staff with food service or direct patient care duties should be reassigned until at least 48 hours after symptoms cease. On returning to work, recently ill staff may be given different duties, if possible, to further reduce the risk of transmission. It should be recommended, but not required, that employees seek medical care for their illness.

Testing for norovirus is not required before staff return to work. However, the need for good hand hygiene should be stressed to returning staff, since an individual can shed norovirus for an average of 28 days following infection.

Minimize the Flow

Minimize the flow of staff between sick and well residents. Staff should be assigned to work with either well residents or sick residents, but should not care for both groups. Staff who work with both groups can play a major role in transmitting the virus from resident to resident.

In addition, limit the number of staff floaters as much as possible to decrease the chance of infection spreading to other floors or wards.

Staff in contact with infected persons should not prepare or serve food. Food should be prepared and provided by dedicated servers or non-direct patient care workers. Also, reinforce that catering staff only have access to the kitchen during the outbreak.

Proper Hand Hygiene

Staff should wash their hands (or use alcohol-based hand sanitizer) **EVERY** time they enter and leave a patient/resident room.

Staff may be further directed to perform hand hygiene at the following times:

- Particular intervals (e.g., once per hour)
- Upon entering a kitchen
- After using the restroom
- After shaking hands or other physical contact with peers or guests
- After sneezing
- After touching the face
- After blowing the nose
- After rubbing hands on clothing and similar activities
- After handling raw foods
- After handling dirty kitchen utensils and kitchenware
- After cleaning, sweeping, or mopping
- After a break
- After smoking, eating, or drinking
- Before and after using PPE such as gloves
- Before handling and food, especially ready-to-eat foods and ice
    - Note: gloves should be worn when handling food – bare hands should not contact exposed, ready-to-eat foods. However, thorough hand-washing is also important in keeping gloves or other utensils from becoming vehicles for transferring microbes to the food.
- Prior to handling or administering any oral medications
- After changing diapers
- After handling other potentially contaminated objects

Employee hand hygiene compliance **MUST** be monitored and enforced – this may require active management through direct observation, reminders, and correction. Also, staff should wear clean clothing daily and change soiled clothing as soon as possible.

Personal Protective Equipment and Norovirus

Patients with suspected norovirus infection should be managed using standard precautions, with careful attention to hand hygiene practices. Standard precautions

include: 1) hand hygiene, 2) use of personal protective equipment (e.g., gloves, gowns, masks), 3) safe injection practices, 4) safe handling of potentially contaminated equipment or surfaces in the patient environment, and 5) respiratory hygiene/cough etiquette.

However, contact precautions should be used when caring for diapered or incontinent persons, during outbreaks, and when splash could occur. Adequate stocks of personal protective equipment (PPE) should be provided and easily accessible.

Staff and visitors should wear gloves and gowns when caring for ill patients/residents or when touching potentially contaminated surfaces. A surgical mask with eye-shield should be worn if there is the possibility of contact with vomiting patients/residents or splashes that could aerosolize infective material.

Workers should change gowns and gloves between contacts with roommates. First remove gloves, then the gown, perform hand hygiene, and then remove mask before exiting the patient/resident room. Ensure that hands and clothes do not touch potentially contaminated environmental surfaces or items in the resident room, such as bed rails and tables. If gloves or hands are visibly soiled with feces or vomitus, wash hands with soap and water. Alcohol-based hand gels (greater than 70% ethanol concentration) may be used if gloves or hands have not been visibly soiled and if soap and water are not readily available.

Note: In addition to requiring proper hand hygiene and PPE, your facility should remove unnecessary items that may be potential sources of transmission such as candy dishes or fruit baskets.

Review Cleaning and Disinfection Methods

Large quantities of virus, millions of virions per gram of stool, are shed by norovirus-infected individuals. An extremely small dose, less than 100 particles, is required for infection. Norovirus can survive for prolonged periods on environmental surfaces, and maximum virucidal activity is generally desirable to effectively control outbreaks. Therefore, facilities should plan and balance issues of efficacy, cost, convenience, frequency of application, toxicity, safety, and availability. Improper disinfection of environmental surfaces contaminated may play a role in the spread of noroviruses in some settings.

Cleaning Use EPA approved cleaning products for any contaminated surfaces, cleaning is necessary to remove foreign material. This is normally accomplished using water with detergents or enzymatic products. Thorough cleaning is necessary since organic matter (e.g., feces, vomitus) can interfere with the antimicrobial activity of disinfectants. In addition, reducing the number of microorganisms that must be inactivated through cleaning increases the margin of safety when a germicide is used

according to the labeling and shortens the exposure time required to kill the entire microbial load.

Disinfection A disinfectant should be used on all surfaces that are touched regularly. Restroom surfaces such as faucet handles, soap dispensers, stall doors and latches, toilet seats and handles, and towel dispensers are heavily contaminated surfaces and require frequent disinfection. Other high touch surfaces include food preparation surfaces, self-service utensil handles, sinks, faucets, drinking fountains, tables, chairs, counters, commodes, bedside tables, door handles and latches, push plates, railings, elevator buttons, thermostats, telephones, alarm clock buttons, keyboards, carts, chairs (including backs), bed rails, hand rails, light switches, curtain pull rods, ice machines, vending machine keyboards, pens, pencils, games, sports equipment, medical equipment (e.g. blood pressure cuffs), privacy curtains, etc.

Regardless of whether a detergent or disinfectant is used on surfaces in a healthcare facility, surfaces should be cleaned routinely and when dirty or soiled. This will provide an aesthetically pleasing environment and prevent potentially contaminated objects from serving as a source for healthcare-associated infections.

An effective disinfectant is a freshly-prepared dilute unscented bleach solution. For hard, non-porous, environmental surfaces, the Centers for Disease Control and Prevention (CDC) recommends a minimum concentration of 1 part unscented household bleach solution to 50 parts water, along with a contact time of one minute. However, the solution becomes substantially and quickly inactivated in the presence of organic matter. Therefore, in areas with high levels of soiling and resistant surfaces, 1 part household bleach solution to 9 parts water and a contact time of up to 10 minutes may be necessary. These concentrations are much higher than is allowed for a no-rinse food contact surface sanitizer, according to the FDA food code. Thus, a food contact area disinfection procedure must be followed by a clear-water rinse and a final wipe down with a sanitizing bleach solution, one tablespoon bleach to one gallon of water, to remove residual high levels of bleach

> NOTE: For disinfection, use an unopened bottle of unscented chlorine bleach. Prepare a dilution of fresh bleach every day of use and discard unused portions. Open bottles of concentrated chlorine will lose effectiveness after 30 days, therefore, replace open bottles of bleach every 30 days for accurate concentrations.
>
> Do NOT mix bleach with other cleaning agents such as vinegar, ammonia or glass cleaners because potential irritants released from such mixtures include chlorine gas, chloramines, and ammonia gas.
>
> Since chlorine bleach may impact fabrics and other surfaces, spot test an area to be cleaned before applying to visible surface. Use only in well-ventilated areas.

General Cleaning/Disinfection

Housekeeping staff should wear gloves and masks when cleaning potentially contaminated surfaces. If gloves or hands are visibly soiled with feces or vomitus or potentially contaminated cleaning solution, wash hands with soap and water. Alcohol-based hand gels (>70% ethanol concentration) may be used if gloves or hands are not visibly soiled and if soap and water are not readily available.

During general cleaning and disinfection, water-disinfectant mixtures should be changed after every three to four rooms at no longer than 60-minute intervals, if there is a large spill, or if the surface is contaminated with visible blood or body fluids. This is to prevent the cleaning procedure from spreading norovirus throughout the environment.

Mops and reusable cleaning cloths should be handled with disposable gloves and wearing a gown. The mops and cloths should be adequately cleaned and disinfected after every three to four rooms at no longer than 60-minute intervals, if there is a large spill, or if the surface is contaminated with visible blood or body fluids). Immersing cleaning cloths in dilute bleach solution (5,000 ppm, 1 gallon water: 1½ cups bleach) for two minutes is likely to be adequate. Standard laundering (e.g., detergent washing followed by drying at 80°C for 2 hours) may provide acceptable decontamination of heavily contaminated mop heads. Daily mop laundering is recommended. Microfiber mops may be preferable to cloth/string mops. Single-use disposable towels impregnated with disinfectant also can be used for low-level disinfection when spot-cleaning of noncritical surfaces is needed.

How to Mix and Use Bleach Solutions

Household bleach is made of 5.25% sodium hypochlorite (52,500 ppm); therefore, a 1% solution is 525 ppm. One tablespoon (= 15 milliliters = 0.5 liquid ounce) of concentrated bleach per gallon of water at normal room temperature is considered to be the equivalent of 200ppm (roughly 0.5% bleach solution). Some experiments have shown that 200 ppm (or even less) will inactivate many viruses. This is the concentration that is generally used for cleaning food preparation surfaces.

So, although 0.5% may be adequate for general surface decontamination a 10% dilution may be necessary for inactivation of norovirus. A 10% solution corresponds to one part bleach to nine parts water (e.g., 1 ¾ cups of household bleach per gallon of water).

Open bottles of concentrated chlorine will lose effectiveness after 30 days. Change bottles of bleach every 30 days for accurate concentrations for disinfecting, use an unopened bottle of chlorine bleach. **Prepare a dilution of fresh bleach every day of use and discard unused portions.**

Note: "Ultra" concentrations of bleach contain 6-7.35% hypochlorite and are not recommended to avoid producing higher than intended concentrations of chlorine.

Note: Only unscented bleach should be used for disinfection purposes, especially for on food contact surfaces, since there is no information on whether the chemical which produce the scent are food safe.

For more information on additional products that can be used for disinfection against norovirus, visit:
http://www.epa.gov/oppad001/list_g_norovirus.pdf

Body Fluid Spills

The process for cleaning fecal body fluids potentially contaminated with norovirus should consist of:

A. Wear a disposable mask, gloves, eye-shield, and plastic disposable apron. Disposable shoe covers may also be considered. Environmental cleaning requiring more concentrated disinfectants may require heavier duty gloves.
B. Use paper towels to soak up excess liquid. Transfer these and any solid matter directly into a plastic bag.
C. Clean the soiled area with detergent and hot water, using a disposable cloth.
D. Disinfect the contaminated area with a disinfecting agent.
E. Dispose of apron and cloths into a plastic waste bag. Dispose of single-use gloves and eye-shields into the waste bag. Contain re-usable personal protective equipment (e.g. rubber gloves) in a plastic bag for cleaning.
F. Remove mask and dispose into the waste bag.
G. Seal the waste bag.
H. Wash hands thoroughly using soap and water for at least one minute and then dry them thoroughly.
I. Wear disposable gloves and place the waste bag into another plastic bag and seal. Place the bag containing the re-usable personal protective equipment (if applicable) into another plastic bag and seal.
J. Wash hands thoroughly using soap and water for at least one minute and then dry them thoroughly.
K. Dispose of the waste bag. Deliver any re-usable personal protective equipment to the appropriate area for cleaning according to manufacturer's recommendations.

Vomit should also be treated as potentially infectious material and should be immediately covered with a disposable cloth, and doused with a disinfectant to reduce potential airborne contamination. All individuals in the immediate area of the vomiting incident should be cleared from the area before clean-up begins. Cleaning staff should use face masks with eye protection or face shield, gloves, and aprons when cleaning up after a vomiting incident. Paper toweling or other toweling used to clean-up liquid vomit should be immediately placed in a sealed trash bag and disposed of properly. The cleaning procedures are the same for fecal contamination. Following cleaning and disinfection, keep the area closed for at least one hour. Any uncovered food in the vicinity must be discarded.

Dishes/Utensils

The use of disposable dishes and utensils may be necessary during a norovirus outbreak. However, regular dish and utensil washing practices using an appropriate dishwasher, with water temperatures at 160 degrees Fahrenheit should effectively

remove any pathogens (FDA Food Code, 2009). Remember, air drying of dishes is preferable to towel drying.

Disinfectant Sprays/Fogging

Disinfectant spray-fog techniques for antimicrobial control are unsatisfactory methods of decontaminating air and surfaces. This is not recommended for general infection control in routine patient-care areas.

Floors

Cleaning procedures that increase the aerosolization of norovirus, such as dry vacuuming carpets or buffing hard surface floors, should **NOT** be utilized. Clean hard surfaces with detergent and hot water, followed by the disinfection techniques discussed in this plan. Contaminated carpets should be managed in a three step process: 1) clean with carpet detergent and hot water, 2) disinfect by applying an appropriate disinfectant, if available, and 3) steam clean at 158°F for five minutes or 212°F for one minute. Using an appropriate virucidal agent in the reservoir for the steam cleaning solution may be considered.

Note: Remove bags from all recently used vacuum cleaners; sanitize the vacuum bags with a virucidal disinfectant and then replace the bags with HEPA filter bags before subsequent use.

It should be noted that the use of a disinfectant on floors is debatable. Floors may become contaminated with norovirus from settling particulates; by contact with shoes, wheels, and other objects; and occasionally by spills. During cleaning, the water-detergent mixture becomes contaminated if a disinfectant is not used, which can lead to seeding the environment and potential infection. In addition, since environmental surfaces close to patients can be contaminated, these surfaces should be disinfected on a regular schedule. By using a single product throughout the facility (for both floors and other environmental surfaces) training and appropriate practice are simplified. However, using a detergent alone on floors may be justifiable because norovirus contamination likely contributes only a limited amount to transmission.

Contaminated Linen and Bed Curtains

Linen and bed curtains should be handled with disposable gloves and gown, carefully placed directly into laundry bags, and washed separately in hot water and detergent for a complete wash cycle – ideally as a half load for best dilution.

Note: Do NOT contaminate clean linen. It is critical that individuals wash their hands every time before removing clean linen from the dryer or when handling clean linen while making a bed.

Air currents should be minimized

Air currents generated by open windows, fans, or air conditioning can disperse viruses and other airborne diseases. Thus, these should be minimized.

Staff Updates

Provide regular updates to all employees, including

- The status of the outbreak
- Current response measures
- Talking points to use in dealing with patients/residents and families
- Reminders of proper hand-washing
- The importance of staying home while ill
- Procedures for identifying and for reporting illness

Duration of Preventive Measures

The necessary duration of preventive measures to adequately control an outbreak of norovirus is not well-defined. A general guideline would be at least two incubation periods (i.e., four days) from the onset of the last case. However, some individuals may shed norovirus for weeks. Therefore, continued surveillance for new cases should continue for at least two weeks to enable a rapid response.

Outbreak After-Action Review

Following the resolution of a norovirus outbreak, conduct an after-action review to identify strengths and weaknesses of the response. Use this opportunity to identify areas that may be improved on for future outbreaks.

Alert EMS to the Potential for Exposure

Alert emergency medical services (EMS) and the receiving facility to the potential for exposure, and appropriate precautions to take, if patient transport is required. This may include guidance on the use of contact precautions and personal protection equipment. In addition, EMS staff should consider appropriate infection control issues, such as disinfection of equipment such as gurneys and stethoscopes. This not only reduces their risk of illness, but the risk of transmission to other patients.

When accepting new patients

When accepting new patients from another healthcare facility, it is important to ask the previous facility if there have been any recent norovirus outbreaks within their facility.

Seasonal Norovirus

Norovirus usually peaks in the winter months; however, outbreaks can occur at any time of the year. Heightened surveillance is importance year round. Any unusually increase in GI symptoms should be noted and reported to the NSHD.

Additional Resources

For additional information and resources on norovirus, please visit the following websites:

- *Centers for Disease Control and Prevention (CDC)*
  http://www.cdc.gov/norovirus/index.html

- *CDC Norovirus Prevention Toolkit*
  http://www.cdc.gov/HAI/prevent/prevention_tools.html#norov

- *Norovirus in Long Term Care Facilities in Nevada, 2011. Nevada State Health Division*
  http://health.nv.gov/childcare/documents/NorovirusinLTCinNevada.pdf

- *Norovirus in Skilled Nursing Facilities in Nevada, 2012 Update. Nevada State Health Division*
  http://health.nv.gov/PDFs/EPI/2012_Norovirus_Report.pdf

Infection Control Measures: Check List

- ❑ Contacted your local health authority to report the outbreak?
- ❑ Faxed line list to your local health authority?
- ❑ Informed staff, visitors and residents of the situation and what they need to do?
- ❑ Ensured that staff with symptoms are excluded from work for at least 48 hours after resolution of symptoms for food handlers or direct patient caregivers?
- ❑ Allocated dedicated staff to care for unwell residents, whenever possible?
- ❑ Provided all staff with information and training in infection control precautions?
- ❑ Ensured that all residents wash their hands after using the toilet, before meals and after any episode of diarrhea or vomiting?
- ❑ Separated well residents from unwell residents, whenever possible, for at least 48-72 hours after resolution of symptoms?
- ❑ Avoided transferring residents to other institutions while cases of norovirus are occurring, or, if a transfer is necessary, ensured receiving institution has been notified of the outbreak?
- ❑ Whenever possible, restricted admissions of new residents until norovirus cases have resolved?
- ❑ Posted signs at appropriate locations throughout the facility?
- ❑ Asked visitors who report any symptoms to avoid visiting till 72 hours after symptoms cease?
- ❑ Ensured all staff and visitors wash their hands before and after all resident contact?
- ❑ Ensured sufficient soap and hand-drying facilities are available?
- ❑ Provided sufficient gloves, gowns, aprons, masks, goggles, face shields and ensured that they are easily accessible?
- ❑ Ensured cleaning
- ❑ Ensured relevant staff are aware of the correct cleaning procedures and the importance of hand-washing?
- ❑ Ensured catering staff are aware of the precautions required in food service area and the importance of hand-washing?
- ❑ Ensured all staff are aware of the precautions required when handling soiled linen?
- ❑ Ensured laundry staff are aware of the correct laundering procedures and the importance of hand-washing

How to Sanitize

1. Put on disposable gloves, mask, and gown, and wear eye protection

2. Fill a clean container with 9 cups of water

3. Add 1 cup of 5.25% unscented bleach to the 9 cups of water.

4. Before using bleach solution, wipe off surfaces with disposable towels to remove any vomit, stool, or other substances like food or grease.

5. Apply bleach solution to surface area with a spray bottle or wet cloth and allow it to remain wet for 10 minutes. If possible, allow bleach solution to air dry.

6. Dispose of all soiled paper towels and personal protective equipment in a plastic trash bag and place in garbage.

Nevada State Health Division
Office of Public Health
Informatics and Epidemiology

Continuing Gastroenteritis Outbreak Daily Report/Line List

To provide ongoing surveillance of the gastroenteritis outbreak at your facility, please complete and return this form daily to the Nevada State Health Division, Office of Epidemiology (NSHD, OoE) by fax at 775-684-5999. This report must be received daily by 1:00 pm, including weekends. The reporting period ("Date for which you are reporting") is the day previous to the reporting date.

Reporting Date (Today's Date): _____
Facility Name: _____
Reporter Name: _____
Reporter Telephone: _____

Date for which you are reporting: _____

Please Type the Information Into the Boxes or Print Legibly

Please use this table as a template to collect data for ill person (resident/staff) and include with daily report.

Last Name	First Name	Onset Date	Date Of Birth	Gender	Patient/ Resident Y/N	Staff- Y/N Duty Station	Hospital/ER/ Dr If Y- specify	Recovery Date	Symptoms	Room- Unit- Wing #	Lab Test Results- if Performed	Comments or Notes